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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/781,444      | 02/18/2004  | Masazumi Yasuoka     | 02008.141001        | 3471             |

7590 05/25/2004

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EXAMINER

VORTMAN, ANATOLY

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application N .</b> | <b>Applicant(s)</b> |
|                              | 10/781,444             | YASUOKA ET AL.      |
|                              | <b>Examin r</b>        | <b>Art Unit</b>     |
|                              | Anatoly Vortman        | 2835                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 18 February 2004.  
2a)  This action is **FINAL**.                            2b)  This action is non-final.  
3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-9, 12-15 and 17-24 is/are rejected.  
7)  Claim(s) 10, 11 and 16 is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. \_\_\_\_\_  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/18/04.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-9, 12-15, and 17-22 are rejected under 35 U.S.C. 102(a/e) as being clearly anticipated by US/6,239,685 to Albrecht et al., (Albrecht).

Regarding claims 1-4, 6-9, 12, 13, 17, 18, and 22, Albrecht disclosed a switch structure (Fig. 2A, 2B) having an actuator as claimed in the claims, including a movable (elastic) part of corrugated structure (201, Fig. 2B) comprising a bend and supported at both ends (203) having a first contact provided between said ends, said movable part comprising four bimetals (AB, BA, AB, BA), each of said bimetals comprising two components (A and B) with different coefficients of thermal expansion, wherein said bimetals when heated are operable to displace said first contact in predetermined opposite directions (i.e. opening and closing).

Regarding claims 5 and 14, Albrecht additionally disclosed that the switch comprises heaters (column 4, lines 18-21).

Regarding claim 15, Albrecht disclosed (Fig. 3) that the switch comprises two signal lines (305, 306) positioned on a substrate and being interconnected by the first contact (304).

Regarding claims 19-21, the method steps recited in the claims are inherently necessitated by the device structure as disclosed by Albrecht.

3. Claims 23 and 24 are rejected under 35 U.S.C. 102(a/e) as being clearly anticipated by US/6,236,300 to Minners.

Minners disclosed (Fig. 2) an actuator as claimed including two parallel bimetals (24a, 26a) and (24a, 26b).

***Allowable Subject Matter***

4. Claims 10, 11, and 16, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:  
regarding claims 10 and 11, claim 10 recites: "one end of said second bimetal is supported by said second supporting section, and another end of said second bimetal extends from said first bimetal, one end of said third bimetal is supported by said second supporting section and provided substantially parallel with said second bimetal, and one end of said fourth bimetal is supported by said first supporting section and another end of said fourth bimetal extends from said third bimetal";

regarding claim 16, the claim recites: "a second substrate including a third signal line, a fourth signal line, and a second supporting section for supporting both the ends of said movable part". The aforementioned limitations in combination with all remaining limitations of the respective claims, are believed to render said claims 10, 11, and 16 patentable over the art of record.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

US/5954079, 5681024, 5619177, 5619061, 6456190, 6703916, 5029805, 5058856, 5796152, 6188301, 6355534, 2003/0034870, 6655011, 6513939, 5536963, 6359374, 5627396, 5677823, 6070851, 4581624, and DE/19516997 disclosed MEMS devices.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 571-272-2047. The examiner can normally be reached on Monday-Friday, between 10:00 am and 6:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg can be reached on 571-272-2800, ext 35. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anatoly Vortman  
Primary Examiner  
Art Unit 2835

AV.

*A. Vortman* —